

FISHERY STATISTICS OF TAIWAN

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1. GENERAL TRENDS IN THE FISHERY SECTOR

Gross National Product (GNP), i.e., Gross Domestic Product GDP plus net factor income from foreign trade, amounted to US \$275 billion in 1996. Nominal GNP rose to 4.6% from 1995. Keen foreign demand prompted exports of Taiwan to surge. GDP totaled US \$273 billion, up 4.9% from 1995. The per capita GDP in 1996 was US \$12,771 (up from US \$12,264 in 1995). The contributions of fisheries to the GDP has decreased from 0.81% in 1992 to 0.72% in 1996 due to constraints in fishery development.

There were 303,153 fishermen of whom 183,367 (60.49%) are full-time fishermen, and 119,786 (39.51%) part-time, 19,002 were engaged in the far-seas, 67369 in offshore, 105,456 in coastal areas, 22,673 in marine culture, 3,727 in inland water fishing fisheries, and 84,926 in inland culture. To solve the problem of labor shortage, more foreign crew are permitted to employ in the country's fishing industry. However, this has not solved the problem of shortage of skilled labor (officers, fishing masters and engineers), as recruitment of domestic apprentices is low due to more choices of jobs on shore.

Fishermen, on the average belong to the older group. Since fishing involves very hard work, less and less Taiwanese want to work in this activity, resulting in a shortage of local labor and the influx of immigrant workers from neighboring countries. The annual income of local fishermen averages around US \$5,940. Workers in processing plants are also normally found to be in the older age group as the younger generation prefers to take up higher skilled and more paying jobs. All these factors play a significant role in lowering the productivity in the processing of fishery products. Low pay compared to other jobs, hazard encounters like typhoons and pirates, and home-sickness are among the reasons why many boat crew move to other jobs. During out of fishing seasons, there is not much catch by the fishermen, so they stop fishing and do secondary job, like farming, factory working, masonry and return during the fishing season.

The number of total fishing boats in 1996 reached 28,111 showing a decrease of 1,611 (-5.42%) compared with 29,722 in 1995. The total tonnage in 1996 reached 856,410.56, showing a decrease of 43,805.94 (-4.87%) compared with the tonnage of 900,216.20 in 1995.

The number of total new built fishing vessels in 1996 was 360, showing a decrease of 6 (-0.27%) compared with 366 in 1995. The total tonnage in 1996 reached 10,304.25, showing a decrease of 5,601.00 (-35.21%) compared with the tonnage of 15,905.25 in 1995.

The number of total powered fishing boats in 1996 was 13,020 showing a decrease of 869 (-6.26%) compared with 13,899 produced in 1995. The total tonnage in 1996 reached 885,730.42 showing a decrease of 13,786.10 (-1.53%) compared with the tonnage of 899,516.52 in 1995.

The number of total non-powered sampans in 1996 was 1,081 showing a decrease of 42 (-3.74%) compared with 1,123 in 1995. The number of total powered rafts in 1996 was 12,503, showing a decrease of 542 (-4.0%) compared with 13,034 in 1995. The number of total non-powered rafts in 1996 was 1,507, showing a decrease of 169 (-10.08%) compared with 1,676 in 1995.

Tuna long liners accounted for the maximum tonnage (around 44%) in 1996 followed by otter trawlers (around 18%), squid jiggers (around 11%), purse seiners (around 6%) and Bull Trawl (around 4%). Most vessels are relatively new and technologically sophisticated.

2. FISH PRODUCTION (1990-1996)

The total fishery production in 1996 reached 1,239,635 mt, showing a decrease of 57,251 mt, (-4.41%) compared with the production of 1,296,886 mt, in 1995 (Table 1). The total value in 1996 reached US \$3,542 million showing a decrease of US \$120 million (-3.28%) compared with the value of US \$3,662 million, in 1995 (Table 2).

The total consumption increased from 1,124,129 mt in 1990 to 1,144,087 mt in 1993 after which there has been a sharp fall to 950,546 mt in 1996 (Table 3).

Imported fishery products in 1996 totaled 508,044 mt, valued at US \$688 million showing a decrease of 45,876 mt, but increase in value about US \$50 million as compared with that of 1995 (Table 4). Import of edible fishery products in 1996 was valued at US \$376 million, US \$120 million less than in 1995. The quantity of edible imports was 130,123 mt, 1,085 mt lower than the quantity imported in 1995.

The quantity of shrimp imported in 1996 was 22,880 mt, 581 mt less than the quantity imported in 1995. Valued at US \$101 million, US \$3 million less than the value in 1995 value, shrimp imports accounted for 27 percent of the value of total edible imports. Imports of Halibut were 13,350 mt, 2,562 mt less than the 15,912 mt imported in 1995. Imports of Salmon amounted to 11,858 mt, an increase of 1,509 mt from 1995. Import of non-edible fishery products was valued at \$317 million, \$235 million more than the record \$282 million imported in 1995 (Table 4).

The exports totaled 419,212 mt, valued at US \$1,336 million showing a decrease of 46,489 mt, and decrease in value about US \$104 million, as compared with that of 1995. Tuna and eel comprised a major share of 70% in exports from Taiwan in 1996. Of these two major species, tuna decreased its share in Taiwan's total marine exports from 49% in 1995 to 47% in 1996. The main species targeted are albacore, bigeye, yellowfins, skipjack and marlins. About 90% of the catch by albacore longliners and purse seiners is exported to Japan, USA, Thailand and Europe for canning. Albacore that makes up 85% of the fish caught by albacore longliners and landed in foreign-based ports, is exported to USA and Thailand.

Bigeye, yellowfin and marlins caught by ultra low temperature longliners are sold to the Japanese sashimi market, whereas in recent years small portions have been shipped back to Taiwan for domestic consumption. Skipjack and yellowfin caught by purse seiners are all sold to the USA, Thailand, Japan and Europe for canning. In terms of unit value realization, tuna had a very low unit value realization of US \$2.9 per kg.

In spite of being the second largest contributor to the total exports (24%), eel commanded a very high export value of US \$17.2 per kg in 1996. Although its export volumes have dropped, it had increased its unit value from US \$9.7 per kg in 1990 to US \$22 per kg in 1995 and finally to US \$17.2 per kg in 1996. The share of shrimps in Taiwan's total export decreased from 11% in 1990 to 3.4% in 1996 and its unit value per kg increased marginally from US \$8.3 per kg to US \$9.9 per kg, respectively (Table 5).

Fish production from 1990 to 1996 for far sea fisheries (Tables 6, 6a, 6b) comprises the following:

- a) Otter Trawling. The total catch in 1996 was 53,797 mt, showing a decrease of 343 mt (-0.63%) as compared with 54,140 mt, produced in 1995.
- b) Bull trawling. The total catch in 1996 was 45,861 mt, showing a decrease of 9,598 mt, (-17.31%) as compared with 55,459 mt, produced in 1995.
- c) Purse seine for tuna. The total catch in 1996 was 188,742 mt, showing an increase of 1,927 mt, (+1.03%) as compared with 186,815 mt produced in 1995.
- d) Tuna long line. The total catch in 1996 was 215,182 mt, showing a decrease of 8,259 mt, (-3.70%) as compared with 223,441 mt produced in 1995.
- e) Squid jigging. The total catch in 1996 was 138,172 mt, showing a decrease of 16,190 mt, (-10.49%) as compared with 154,362 mt, produced in 1995.
- f) Torch light net for saury. The total catch in 1996 was 8,236 mt, showing a decrease of 5,536 mt, (-40.20%) as compared with 13,772 mt, produced in 1995.

Production from 1990 to 1996 for offshore fisheries Tables 6, 6a, 6b) comprises:

- a) Purse seine. The production of 16,44 mt, showing an increase of 2,674 mt (+19.42%) as compared with 13,770 mt produced in 1995.
- b) Purse seine for mackerel. The production of 77,075 mt, showing an increase of 15,114 mt, (+24.39%) as compared with 61,961 mt produced in 1995.
- c) Torch light net. The production of 16,960 mt, showing a decrease of 1,673 mt, (-8.98%), as compared with 18,633 mt, produced in 1995.
- d) Drag net. The production of 93,809 mt, showing an increase of 1,210 mt (+1.31%) as compared with 92,599 mt produced in 1995.

- e) Gill net. The production of 13,825 mt, showing a decrease of 2,799 mt (-16.84%) as compared with 16,624 mt produced in 1995.
- f) Tuna long line. The production of 22,258 mt, showing a decrease of 10,433 mt, (-31.91%) as compared with 32,691 mt produced in 1995.
- g) Miscellaneous fish long line. The production of 8,723 mt, showing a decrease of 3,152 mt (-26.54%) as compared with 14,936 produced in 1995.
- h) Poles and lines boote. The production of 1,467 mt, showing an increase of 125 mt (+8.52%) as compared with 1,467 mt produced in 1995.

Production from 1990 to 1996 for coastal fisheries (Tables 6, 6a, 6b) comprises:

- a) Set net. The production of 11,554 mt, showing a decrease of 26 mt, (-0.22%), as compared with 11,580 mt, produced in 1995.
- b) Beach seine. The production of 434 mt, showing an increase of 544 mt, (-55.62%), as compared with 978 mt, produced in 1995.
- c) Torch light net. The production of 1,620 mt, showing a decrease of 180 mt (-10.00%), as compared with 1,800 mt, produced In 1995.
- d) Gill net. The production of 13,526 mt, showing a decrease of 363 mt, (-2.61%), as compared with 13,889 mt, produced in 1995.
- e) Pole and lines boote. The production of 2,957 mt, showing an increase of 119 mt, (+4.19%) as compared with 2,838 mt, produced in 1995.
- f) Long line. The production of 1,265 mt, showing a decrease of 451 mt, (-26.28%), as compared with 1,716 mt, produced in 1995.
- g) Spear fishing. The production of 631 mt, showing a decrease of 662 mt, (-51.20%), as compared with 1,293 mt, produced in 1995.

On the other hand, the production from inland fisheries of 443 mt, showing a decrease of 768 mt, (-63.42%) as compared with 1,211 mt, produced in 1995 (Tables 6, 6a, 6b).

3. FISHERY POLICY TOWARD AD 2010

In order to approach the goals of the National Fisheries Programme, the Taiwan Fisheries Bureau plans to facilitate the following:

- a) Development of seafood products with competency and a marketing system with business administration;
- b) Creation of stable environment for fisheries development; the establishment of wealthy and beautiful villages for fishermen with cultural focus; and

- c) **Strengthening consumers' faithfulness and support for local fisheries.**

On the other hand, the goals of "The Cross-Century Agriculture Development Program" by the Council of Agriculture are:

- a) **To develop modern agriculture with efficiency and stability;**
- b) **To establish self-sufficient and beautiful villages for farmers and fishermen with wealth and nature; and**
- c) **To improve the welfare for farmers and fishermen with faithfulness and dignity.**

The program will also implement the following management aspects:

- a) **The number of coastal and off-shore fishing boats will undergo annual reduction, enabling individual fishing boats and fishermen to improve their productivity and profitability;**
- b) **Coastal fisheries has been diversified to recreational fishing and appropriate steps are being taken for the prevention of pollution in coastal areas;**
- c) **On the high seas within the exclusive economic zones of other coastal nations, the distant water fishing vessels will participate in the exploitation of marine fishery resources through international fishery cooperation. Distant water fisheries will become means of strengthening the international relationship; and**
- d) **Aquaculture is now being focused on high value marine species and the proportion of production by fresh water aquaculture is being gradually reduced. Water recycling is being promoted in aquaculture and sea ranching is increasingly being used along with improved management of fish ponds in order to achieve harmony between aquaculture and environment.**

4. STATUS OF NATIONAL FISHERY STATISTICAL SYSTEMS

The Taiwan Fisheries Bureau (TFB) has the obligation to process fishery statistics for the Taiwan area and its Fifth Division is responsible not only for the survey system, methodology and program tabulation but also for scrutinizing the data, and the compilation and publication of such data. The sub-district office fishermen's association and fish markets complete the reporting forms (questionnaires) monthly or yearly from formal or informal records or investigations following the standard methods in the fishery statistical handbook. The data is transferred to the district levels according to the time schedule and tabulation program. The completion of reporting forms is done initially by the Fishery Section and Kaohsiung Municipal Fisheries Department at the district level, with analysis and estimation. The data are inputted in computer data base and the diskettes are forwarded to Fifth Division of TFB for further scrutiny and aggregation.

Landing fishery production overseas is collected by Kaohsiung Municipal Fishery Department and TFB through the landing port agency with self-enumeration procedure. In fishery exports and import statistics, electronic media data come from the Statistical Department of the Directorate General of Customs of the Ministry of Finance. The data are processed, analyzed and tabulated using computers at the TFB.

All data are finally transferred to the Provincial (or Municipal) fishery administration where summarization is made, and monthly and annual reports are published. As far as the data are concerned, there are 21 major items included in the regular reporting system. The other information, in addition to production and marketing, included in the system are: basic composition of fishermen's association and their membership, employees, or reported data.

For the socio-economical survey, purposive sampling is used to collect data with interview by visiting the household and fishing company by a surveyor. Data are double checked for quality of data using trade statistics of foreign countries as reference.

For the aquaculture information system, the data are collected by a geographical information system through air photo, pond site surveys using purposive sampling and registered licenses. The statistics of aquaculture information system are not normal statistics reported annually and are only used as reference of the basic fishery statistics. On the other hand, fishery management information system makes use of licensed data of registered fishing boats and fishermen and other related information as references.

For fish market information system, the data from product and consumer markets related to the daily auctions, are sent to the data processing centers of TFB by telephone for compilation and information processing. The market information system provides a form of the transaction data of the consumers and producers rather than statistical reporting.

For the purpose of data processing, many computer systems are used, and beginning in 1980, fishery statisticians rely on computer-generated information for their data requirements. Statistical system has become directly involved with compilation and analysis using packaged software and training program, starting with the main frame to personal or notebook computers. All data sets are keyed-in, processed, tabulated, exchanged using communication equipment, and stored in the computers.

5. FISHERY CENSUS

The agricultural, forestry, fishery and husbandry census is done in accordance with the Law of Statistics, and listed as the basic investigation of the national situation. Since 1956, the census is conducted every five years. A survey is conducted in every Gregorian year with the final digit coinciding with "5". Its main purpose is to collect information on resources distribution, production structure, the characteristics of labor force, the capital equipment, and the real situation of the management system.

A commission handles the census, which generally comprised scientists, administrators and experts in fisheries, and sponsored by Directorate-General of Budget, Accounting and Statistics of the Executive Yuan. Under the Commission, techniques study team is organized for reviewing and deciding the related programs, plans and rules. In this operational system, four hierarchical parts are differentiated to facilitate the census procedure.

The Directorate-General of Budget, Accounting and Statistics is in charge of the whole system. The questionnaires are distributed to temporary surveyors for them to visit the fishery households or companies. An incipient data processing is then carried out by the regional work team.

The regional work teams are usually established as subsidiaries of the town administration. From the top to the lower level of the system, there are county and provincial (or municipal) statisticians working on the verification of the reliability, consistency and reasonableness of the data in order to guarantee their quality. The items on the fishery section of the survey, are as follows:

- a) The general situation, which includes the composition of fishermen's families, the number of working days, organizational type, characters for the managers, workers employed, main objects managed;
- b) Fishing equipment and how it works;
- c) Area of plantation, the equipment used, and how it is planted; and
- d) The will to engage in fishery, the incidental difficulties and demand.

Fishery census is completed by population counts biennially and collected by sample survey once every five years. The last census undertaken in 1996 included information obtainable in calendar year 1990. The population counts of nationwide sample was surveyed through interview procedure of household and self-enumeration of company rather than sample surveys as in 1991.

The fishery census makes use of an IBM 3090 main frame while the fishery basic statistics collected from stations, are processed by Intel-80486 IBM compatible personal computers (PCs). The fishery resource survey data are processed using the Unix system of the workstation or PCs. The fishery management information system by IBM 9221 mainframe through the fishery authority online. The system for integral management of fishing boats and fishermen, market price information are processed by value added network of a central database in a PC, aquaculture information system by PC BBS and others mostly by PC with Statistics Analysis System (SAS) and application programs. Unfortunately, the data sharing in fishery statistics is difficult because these are stored in different systems and their retrieval could be time-consuming.

At present, a large computer fishery network has been designed for fishery statistics and information. Its scope contains a wide area network of main frame computers, local area network of personal computers and end-user personal computers that are hooked up as an integral system, by communication facilities. World wide web (www) is available for information exchange (www.tfb.gov.tw).

6. CATCH-EFFORT AND FISH PROCESSING STATISTICS

Presently, there are about 450 small tuna longliners (50-70 GRT) from Taiwan operating in the waters of Indonesia, the Philippines, Malaysia, Federated States of Micronesia, Guam, Palau, Solomon Islands, Marshall Islands etc. In view of the seasonal catch rates of fish from these waters, some of the tuna longliners shift to other neighboring countries in the South China Sea area from time to time, depending on their respective catch information. The total catch for the small longline as a whole in 1996 was estimated at about 50,000 mt. The data for catch and effort statistics are collected by means of a self-enumeration telegraphic station.

The appropriate questionnaires are prepared previously as tools for the daily operation situation in fishing reported from boat owners or captains. Samples are selected by means of purposive sampling. Being aware that timely collection, compilation and analysis of data are fundamental to the effective conservation and management of small longline fisheries, the country will do its best to reinforce the collection system for small longline fisheries data. After 1 July 1996, the data collecting and processing center which was formerly designated to the Institute of Oceanography, National Taiwan University (NTU), had been endorsed to the Overseas Fisheries Development Council (OFDC). After 1 July 1997, the said collection was again endorsed finally to the TFB. Only data verified by TFB and preliminarily processed by OFDC will be provided to the individual scientists of NTU for stock assessment and biological research purposes. This new arrangement would hopefully increase the efficiency of data collection and verification of the collected data. In this connection, the TFB needs to strengthen its manpower and enrich its experience with other competent agencies. The domestic industries will also be involved in statistics and data collection. To enhance the cooperation with regional fishery management organizations, collection and exchange of data will continue to be based on the consistent policy.

Some fishing-based statistics are also collected by National Taiwan University, National Taiwan Ocean University and other related academic institutions. Publications of their data include the Annual Report of Effort and Catch Statistics by Area on Taiwan Demersal Fish Fisheries; Annual Catch Statistics of Taiwanese Tuna Longline Fishery; Statistics of Deep Sea Jigging Fishery of Squid in Southwest Atlantic Region; and Report on Catch Statistics and Resource Survey of Offshore and Coastal Fishery. These are published by TFB from the data collected by the said academic organizations.

Four major groups of fish products are produced from the local fish processing industry. These are: canned products; frozen and cold storage products; smoked, dried and salted products; and dried/seasoned, fish, fin, mullet roe, fish paste, others. In 1996, canned fishery products totaled 11,826 mt which was valued at US \$22 million. Frozen and cold storage products were 162,244 mt, valued at US \$295 million; smoked products were 366 mt, valued at US \$2.9 million; dried and salted products were 12,298 mt, valued at US \$67 million; dried/seasoned products were 4,542 mt, valued at US \$51 million; and fish paste products were 7,837 mt, valued at US \$22 million. On the other hand, processed fishery products not for human food were 34,489 mt and valued at US \$14 million.

The fish processing industry in Taiwan can be grouped into two categories in terms of the scale of operation, viz factories which are export oriented and manufacture high value added products for the overseas markets, and factories which are small and medium in operational-size but produce traditional fish products for local demand and regional markets. The number of fish processing plants were 834 in 1996, representing an increase of 87 compared with that of 1995. Of this total number, 592 were cottage industries, 220 were Product Inspection Bureau classified plants, and 22 were licensed plant.

There are 21 local fishing sections in 21 counties in Taiwan Province, and one Kaohsiung Municipal Fishery Department. Some 18 of these are attached to the Agriculture Bureau or Construction Bureau of the county government. At present, fishery statistics, including data collection and processing is an official routinary work of the Fishery Section. Fishery statistics belong to agriculture statistics, and is featured in the yearly report to the District Magistrate and Director of Agriculture. There are no full-time employees at the sub-districts.

The work is done by the local veterinarian or any member of the office. Since there are few inland fisheries operated in Taiwan, 37 fishermen's associations and their offices along the coast of Taiwan are utilized as major fishery collection center of statistical data.

7. PROPOSALS TO IMPROVE NATIONAL FISHERY STATISTICAL SYSTEMS

- a) Invitation of experts, scholars, professions of fishery and related fields to attend meeting on open issues and update the information of the fisheries yearbook of Taiwan area;
- b) Provision of extensive training to the country's surveyors and building up of a well-defined statistical system for capture fisheries. Implementation of sample investigative data to rectify the fisheries yearbook of the Taiwan area;
- c) Release of fishery periodicals and booklets for surveyor's reference;
- d) Continuous updating of the information to identify and clarify ambiguous points;
- e) Release of operation manuals on fishery surveying information system to help surveyors on system utilization; and
- f) Building up of computer and communication systems, and of information exchange to enhance the related database of fishery statistics.

Table 1. Fisheries Production, 1990-1996

Unit : MT

Type of Fisheries (Year)	Grand Total	Far Sea Fisheries	Offshore Fisheries	Coastal Fisheries	Marine Culture	Inland Culture	Inland Fishing Fisheries
1990	1,455,495	766,985	292,391	48,362	36,507	3,494	307,756
1991	1,316,651	714,263	266,945	41,231	31,192	2,327	260,693
1992	1,326,981	737,638	280,513	45,401	33,958	1,782	227,690
1993	1,423,971	834,965	258,601	43,443	35,105	1,688	250,170
1994	1,255,273	683,780	242,272	39,800	33,185	1,456	254,780
1995	1,296,886	709,543	255,981	43,518	33,230	1,211	253,404
1996	1,239,635	668,979	256,654	41,033	34,889	443	237,636

Table 2. Fisheries Value, 1990-1996

Unit : Thousand N.T. \$

Type of Fisheries (Year)	Grand Total	Far Sea Fisheries	Offshore Fisheries	Coastal Fisheries	Marine Culture	Inland Culture	Inland Fishing Fisheries
1990	89,154,163	35,248,572	18,234,546	3,960,095	3,040,645	180,376	28,489,929
1991	83,526,072	32,203,991	17,457,328	3,516,865	2,597,564	91,686	27,658,639
1992	83,715,433	34,622,193	16,393,842	3,326,754	3,086,938	80,605	250,170
1993	93,175,224	42,700,613	17,285,500	3,270,613	3,463,073	102,554	26,352,871
1994	89,201,376	36,046,903	16,083,584	3,430,129	3,083,369	74,321	30,483,070
1995	100,565,749	43,084,074	16,930,516	3,978,190	3,183,258	58,738	33,330,973
1996	97,265,187	43,827,522	16,585,511	4,256,372	3,135,683	34,160	29,425,939

Table 3. Total amount used for human consumption in Taiwan**Unit: KG**

Year	Total of Fisheries Production	Total of Export	Total of Import	Total of nonedible	Domestic sales
1990	1,455,495,000	391,315,349	530,073,906	470,124,222	1,124,129,335
1991	1,316,651,000	416,969,402	499,238,539	435,542,798	963,377,339
1992	1,326,981,000	342,163,396	484,984,012	399,163,826	1,070,637,790
1993	1,423,971,000	382,294,688	592,569,216	488,158,322	1,146,087,206
1994	1,255,273,000	419,873,544	581,720,371	459,824,292	957,295,535
1995	1,296,865,000	465,700,609	553,919,753	424,880,722	960,203,422
1996	1,239,635,000	419,212,389	508,043,923	377,920,057	950,546,477

Table 4. An analysis of import of major product groups/species

Q: Qty: Mt
V: Value: Million US \$
P: Unit Value: US\$/kg

Name of the product group/species	1990			1991			1992			1993		
	Q	V	P	Q	V	P	Q	V	P	Q	V	P
Eel	1,262	41	32.5	752	40	53.2	755	33	43.7	477	20	41.9
Shrimp*	5,161	29	5.6	6,289	33	5.2	13,355	56	4.2	19,217	78	4.1
Salmon	174	1	5.7	405	1	2.5	736	3	4.1	3,182	13	4.1
Halibut	9,104	11	1.2	11,869	14	1.2	13,591	24	1.8	17,044	26	1.5
Oth. fish**	471,612	268	0.6	429,888	274	0.6	398,975	259	0.6	492,006	273	0.6
Other	42,761	124	2.9	50,036	142	2.8	57,572	173	3.0	60,643	187	3.1
Total Marine Exports	530,074	473	0.9	499,239	504	1.0	484,984	548	1.1	592,569	597	1.0

Name of the product group/species	1994			1995			1996		
	Q	V	P	Q	V	P	Q	V	P
Eel	941	30	31.9	1,298	39	30.0	1,124	34	30.2
Shrimp*	25,104	103	4.1	23,461	98	4.2	22,880	101	4.4
Salmon	7,016	22	3.1	10,349	28	2.7	11,858	30	2.5
Halibut	5,171	24	1.6	15,912	26	1.6	13,350	23	1.7
Oth. fish**	467,670	248	0.5	435,147	262	0.6	386,419	280	0.7
Other	65,818	206	3.1	67,753	208	3.1	72,413	220	3.0
Total Marine Exports	581,720	633	1.1	553,920	661	1.2	508,044	688	1.4

* incl. Striped prawn, grass shrimp

** incl. Yellow fin, blue fin, southern blue fin, longfinned, big eye and other tuna and Skipjack

Table 5. An analysis of export of major product groups/species

Q: Qty: Mt
V: Value: Million US \$
P: Unit Value: US\$/kg

Name of the product group/species	1990			1991			1992			1993		
	Q	V	P	Q	V	P	Q	V	P	Q	V	P
Eel	46,933	455	9.7	46,097	563	12.2	44,696	582	13.0	37,797	618	16.4
Tuna [#]	193,054	396	2.1	201,058	364	1.8	161,587	330	2.0	202,975	370	1.8
Oth. fish	40,734	86	2.1	48,243	106	2.2	41,720	102	2.4	45,109	107	2.4
Squid	40,988	70	1.7	35,229	76	2.2	27,712	74	2.7	32,167	77	2.4
Shrimp*	17,183	142	8.3	17,157	141	8.2	12,424	122	9.8	6,631	61	9.2
Other	52,423	106	2	69,185	123	1.8	54,025	110	2.0	57,616	114	2.0
Total Marine Exports	391,315	1,255	3.2	416,969	1,373	3.3	342,164	1,320	3.9	382,295	1,347	3.5

Name of the product group/species	1994			1995			1996		
	Q	V	P	Q	V	P	Q	V	P
Eel	23,732	448	18.9	15,442	340	22.0	18,239	314	17.2
Tuna [#]	239,715	588	2.5	286,651	734	2.6	218,123	623	2.9
Oth. fish	54,191	132	2.4	57,430	159	2.8	31,040	83	2.7
Squid	32,898	60	1.8	28,242	61	2.2	28,105	59	2.1
Shrimp*	5,196	54	10.7	4,815	52	10.8	4,558	45	9.9
Other	64,142	120	1.9	73,121	146	2.0	119,147	211	1.8
Total Marine Exports	419,874	1,402	3.3	465,701	1,492	3.2	419,212	1,335	3.2

[#] incl. Yellow fin, blue fin, southern blue fin, longfinned, big eye and other tuna and Skipjack

* incl. Striped prawn, grass shrimp

Table 6. Fisheries production and value by type of fisheries (1990-1992)

Unit: Quantity: M.T.
Value: Thousand N.T. \$

Type of Fisheries	Year	1990		1991		1992	
		Quantity	Value	Quantity	Value	Quantity	Value
Grand Total		1111232	57623589	1024766	53269869	1065333	54423394
Far Sea Fisheries		766985	35248572	714263	32203991	737638	34622193
Otter Trawl		97145	4277440	86115	3814168	40064	2006836
Bull Trawl		104128	4319067	98775	4269631	71375	3606226
Purse Seine for Tuna		124599	3013627	107062	2456971	165879	4182712
Tuna Long Line		155921	9993993	134574	7880426	237132	16256080
Gill Net of Large Mesh Size		125112	6248412	90982	5090863	25551	1331060
Squid Jigging		88254	4685110	124176	5753720	151535	5828660
Squid Gill Net		38034	2110795	51326	2555221	11053	456489
Torch Light Net for Saury		31877	548283	19473	331041	34235	917847
Coral Fishing		-	-	-	-	-	-
Other Far Sea Fisheries		1915	51844	1780	51951	814	36644
Offshore Fisheries		292391	18234546	266945	17457328	280513	16393842
Purse Seine		9826	357793	6605	177342	13887	507136
Purse Seine for Mackerel		53897	1077930	42734	950478	60858	1315625
Torch Light Net		34132	2164571	24292	1803318	23156	1247123
Drag Net		120697	8713733	125259	9112550	110960	7264788
Gill Net		22307	2080286	19921	2055720	17476	1836745
Driving-in Net		484	7540	379	7128	325	10500
Other Offshore Nets		4650	631131	4322	490937	2350	222263
Tuna Long Line		21292	1693263	23960	1648665	29043	1990738
Misc. Fish Long Line		13847	818751	12957	676159	16993	1578420
Troll Line		3945	285655	3699	248053	2288	104425
Pole and Lines Boote		5173	322954	1602	217796	1462	163392
Other Angling		322	18656	403	36850	470	46664
Coral Fishing		1	1150	-	-	-	-
Other Offshore Fisheries		1821	61132	812	32332	1245	106025
Coastal Fisheries		48362	3960095	41231	3516865	45401	3326754
Set Net		7026	340257	8311	481326	10537	601415
Beach Seine		773	82476	427	38331	432	47075
Torch Light Net		5474	538662	3081	344330	2544	148401
Gill Net		17472	1323602	14183	1161767	15405	1038331
Other Coastal Nets		4981	500550	3472	341940	4077	490138
Pole and Lines Boote		3890	247886	2556	173644	2999	162070
Long Line		2460	280249	2635	304147	1396	109266
Other Angling		497	28864	563	25433	624	32105
Spear Fishing		1862	259591	2151	282416	1894	174044
Sport Fishing		441	42306	495	44324	263	23391
Other Coastal Fisheries		3486	315653	3358	319207	5228	500518
Inland Fishing Fisheries		3494	180376	2327	91686	1782	80605
Inland Water Fishing		2075	98824	1130	36400	743	29716
Reservoir Fishing		1179	67687	1054	51443	980	48192
Other Inland Fishing		241	13865	143	3844	58	2697

Table 6a. Fisheries production and value by type of fisheries (1993-1996)

Unit: Quantity: M.T.
Value: Thousand N.T. \$

Type of Fisheries	1993		1994		1995		1996	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Grand Total	1138696	63359280	967308	55634937	1010231	64049342	967110	64703565
Far Sea Fisheries	834965	42700613	683780	36046903	709543	43084074	668979	43827522
Otter Trawl	44184	1913636	35400	2000297	54140	2764774	53797	3153206
Bull Trawl	79100	3482080	61947	3491623	55459	3449553	45861	3055381
Purse Seine for Tuna	176666	3622608	182555	4357325	186815	3881684	188742	3570215
Tuna Long Line	300193	28398147	209319	20282828	223441	25359200	215182	27989934
Gill Net of Large Mesh Size	-	-	-	-	-	-	-	-
Squid Jigging	197494	4615064	158303	5065696	154362	6478838	138172	5114898
Squid Gill Net	-	-	-	-	-	-	-	-
Torch Light Net for Saury	36435	633975	12550	251004	13772	330528	8236	222365
Coral Fishing	-	-	-	-	-	-	-	-
Other Far Sea Fisheries	892	35103	23706	598130	21553	819498	18989	721523
Offshore Fisheries	258601	17285500	242272	16083584	255981	16930516	256654	16585511
Purse Seine	11092	519390	5366	268798	13770	487615	16444	403461
Purse Seine for Mackerel	63849	1781941	71941	1048922	61961	1785923	77075	2274057
Torch Light Net	16897	982081	21542	1257623	18633	979658	16960	819180
Drag Net	103594	7293843	77483	6023970	92599	6536107	93809	6786404
Gill Net	12224	1410675	17275	2348564	16624	2202622	13825	2010468
Driving-in Net	531	41143	576	89118	166	6760	403	46108
Other Offshore Nets	414	37746	300	40862	449	92841	-	-
Tuna Long Line	27287	2402609	22698	2378278	32691	2942663	22258	2063630
Misc. Fish Long Line	13558	2301420	14936	1648668	11875	1248762	8723	1417660
Troll Line	5112	160248	3353	183335	336	22176	392	78655
Pole and Lines Boote	1657	181653	2206	307984	1467	236645	1592	259398
Other Angling	815	82494	1113	123727	721	88135	932	120680
Coral Fishing	-	-	-	-	-	-	-	-
Other Offshore Fisheries	1542	90258	3485	363736	4690	300612	4242	305811
Coastal Fisheries	43443	3270613	39800	3430129	43496	3976013	41033	4256372
Set Net	12008	706813	13143	831139	11558	669856	11554	788623
Reach Seine	684	100750	611	84286	978	129049	434	59028
Torch Light Net	1083	117015	734	66813	1800	189958	1620	188356
Gill Net	17264	1340859	14387	1269521	13889	1195016	13526	1344211
Other Coastal Nets	1927	156735	1682	216905	2763	439386	3758	439709
Pole and Lines Boote	2366	175777	2800	261469	2838	253740	2957	338028
Long Line	988	117125	503	63531	1716	165871	1265	204625
Other Angling	726	50592	913	90324	825	64642	947	67191
Spear Fishing	1238	167748	1355	199596	1293	141644	631	107845
Sport Fishing	277	22986	286	28066	168	16410	306	27739
Other Coastal Fisheries	4882	314214	3385	318479	5669	710442	4034	691017
Inland Fishing Fisheries	1688	102554	1456	74321	1211	58738	443	34160
Inland Water Fishing	467	32832	651	32797	505	23884	35	5493
Reservoir Fishing	964	51032	547	23064	482	22617	385	25156
Other Inland Fishing	257	18690	259	18460	225	12237	24	3512

Table 6b. Fisheries production by type of fisheries (1993-1996)

Unit: Quantity: M.T.

Type of Fisheries	Year	1993		1994		1995		1996	
		Quantity	%	Quantity	%	Quantity	%	Quantity	%
Grand Total		1138696	100.00%	967308	100.00%	1010231	100.00%	967110	100.00%
Far Sea Fisheries		834965	73.33%	683780	70.69%	709543	70.24%	668979	69.17%
Otter Trawl		44184	3.88%	35400	3.66%	54140	5.36%	53797	5.56%
Bull Trawl		79100	6.95%	61947	6.40%	55459	5.49%	45861	4.74%
Purse Seine for Tuna		176666	15.51%	182555	18.87%	186815	18.49%	188742	19.52%
Tuna Long Line		300193	26.36%	209319	21.64%	223441	22.12%	215182	22.25%
Gill Net of Large Mesh Size		-	-	-	-	-	-	-	-
Squid Jigging		197494	17.34%	158303	16.37%	154362	15.28%	138172	14.29%
Squid Gill Net		-	-	-	-	-	-	-	-
Torch Light Net for Saury		36435	3.20%	12550	1.30%	13772	1.36%	8236	0.85%
Coral Fishing		-	-	-	-	-	-	-	-
Other Far Sea Fisheries		892	0.08%	23706	2.45%	21553	2.13%	18989	1.96%
Offshore Fisheries		258601	22.71%	242272	25.05%	255981	25.34%	256654	26.54%
Purse Seine		11092	0.97%	5366	0.55%	13770	1.36%	16444	1.70%
Purse Seine for Mackerel		63849	5.61%	71941	7.44%	61961	6.13%	77075	7.97%
Torch Light Net		16897	1.48%	21542	2.23%	18633	1.84%	16960	1.75%
Drag Net		103594	9.10%	77483	8.01%	92599	9.17%	93809	9.70%
Gill Net		12224	1.07%	17275	1.79%	16624	1.65%	13825	1.43%
Driving-in Net		531	0.05%	576	0.06%	166	0.02%	403	0.04%
Other Offshore Nets		414	0.04%	300	0.03%	449	0.04%	-	-
Tuna Long Line		27287	2.40%	22698	2.35%	32691	3.24%	22258	2.30%
Misc. Fish Long Line		13558	1.19%	14936	1.54%	11875	1.18%	8723	0.90%
Troll Line		5112	0.45%	3353	0.35%	336	0.03%	392	0.04%
Pole and Lines Boote		1657	0.15%	2206	0.23%	1467	0.15%	1592	0.16%
Other Angling		815	0.07%	1113	0.12%	721	0.07%	932	0.10%
Coral Fishing		-	-	-	-	-	-	-	-
Other Offshore Fisheries		1542	0.14%	3485	0.36%	4690	0.46%	4242	0.44%
Coastal Fisheries		43443	3.82%	39800	4.11%	43496	4.31%	41033	4.24%
Set Net		12008	1.05%	13143	1.36%	11558	1.14%	11554	1.19%
Beach Seine		684	0.06%	611	0.06%	978	0.10%	434	0.04%
Torch Light Net		1083	0.10%	734	0.08%	1800	0.18%	1620	0.17%
Gill Net		17264	1.52%	14387	1.49%	13889	1.37%	13526	1.40%
Other Coastal Nets		1927	0.17%	1682	0.17%	2763	0.27%	3758	0.39%
Pole and Lines Boote		2366	0.21%	2800	0.29%	2838	0.28%	2957	0.31%
Long Line		988	0.09%	503	0.05%	1716	0.17%	1265	0.13%
Other Angling		726	0.06%	913	0.09%	825	0.08%	947	0.10%
Spear Fishing		1238	0.11%	1355	0.14%	1293	0.13%	631	0.07%
Sport Fishing		277	0.02%	286	0.03%	168	0.02%	306	0.03%
Other Coastal Fisheries		4882	0.43%	3385	0.35%	5669	0.56%	4034	0.42%
Inland Fishing Fisheries		1688	0.15%	1456	0.15%	1211	0.12%	443	0.05%
Inland Water Fishing		467	0.04%	651	0.07%	505	0.05%	35	0.00%
Reservoir Fishing		964	0.08%	547	0.06%	482	0.05%	385	0.04%
Other Inland Fishing		257	0.02%	259	0.03%	225	0.02%	24	0.00%

Table 7. Fisheries value by type of fisheries (1990-1992)

Type of Fisheries	Year	Value: Thousand N.T. \$					
		1990		1991		1992	
		Value	%	Value	%	Value	%
Grand Total		57623589	100.00%	53269869	100.00%	54423394	100.00%
Far Sea Fisheries		35248572	61.17%	32203991	60.45%	34622193	63.62%
Otter Trawl		4277440	7.42%	3814168	7.16%	2006836	3.69%
Bull Trawl		4319067	7.50%	4269631	8.02%	3606226	6.63%
Purse Seine for Tuna		3013627	5.23%	2456971	4.61%	4182712	7.69%
Tuna Long Line		9993993	17.34%	7880426	14.79%	16256080	29.87%
Gill Net of Large Mesh Size		6248412	10.84%	5090863	9.56%	1331060	2.45%
Squid Jigging		4685110	8.13%	5753720	10.80%	5828660	10.71%
Squid Gill Net		2110795	3.66%	2555221	4.80%	456489	0.84%
Torch Light Net for Saury		548283	0.95%	331041	0.62%	917487	1.69%
Coral Fishing		-	-	-	-	-	-
Other Far Sea Fisheries		51844	0.15%	51591	0.10%	36644	0.07%
Offshore Fisheries		18234546	51.73%	17457328	32.77%	16393842	30.12%
Purse Seine		357793	1.02%	177342	0.33%	507136	0.93%
Purse Seine for Mackerel		1077930	3.06%	950478	1.78%	1315625	2.42%
Torch Light Net		2164571	6.14%	1803318	3.39%	1247123	2.29%
Drag Net		8713733	24.72%	9112550	17.11%	7264788	13.35%
Gill Net		2080286	5.90%	2055720	3.86%	1836745	3.37%
Driving-in Net		7540	0.02%	7128	0.01%	10500	0.02%
Other Offshore Nets		631131	1.79%	490937	0.92%	222263	0.41%
Tuna Long Line		1693263	4.80%	1648665	3.09%	1990738	3.66%
Misc. Fish Long Line		818751	2.32%	676159	1.27%	1578420	2.90%
Troll Line		285655	0.81%	248053	0.47%	104425	0.19%
Pole and Lines Boote		322954	0.92%	217796	0.41%	163392	0.30%
Other Angling		18656	0.05%	36850	0.07%	46664	0.09%
Coral Fishing		1150	0.00%	-	-	-	-
Other Offshore Fisheries		61132	0.17%	32,332	0.06%	106025	0.19%
Coastal Fisheries		3960095	11.23%	3516865	6.60%	3326754	6.11%
Set Net		340257	0.97%	481326	0.90%	601415	1.11%
Beach Seine		82476	0.23%	38331	0.07%	47075	0.09%
Torch Light Net		538662	1.53%	344330	0.65%	148401	0.27%
Gill Net		1323602	3.76%	1161767	2.18%	1038331	1.91%
Other Coastal Nets		500550	1.42%	341940	0.64%	490138	0.90%
Pole and Lines Boote		247886	0.70%	173644	0.33%	162070	0.30%
Long Line		280249	0.80%	304147	0.57%	109266	0.20%
Other Angling		28864	0.08%	25433	0.05%	32105	0.06%
Spear Fishing		259591	0.74%	282416	0.53%	174044	0.32%
Sport Fishing		42306	0.12%	44324	0.08%	23391	0.04%
Other Coastal Fisheries		315653	0.90%	319207	0.60%	500518	0.92%
Inland Fishing Fisheries		180376	0.51%	91686	0.17%	80605	0.15%
Inland Water Fishing		98824	0.28%	36400	0.07%	29716	0.05%
Reservoir Fishing		67687	0.19%	51443	0.10%	48192	0.09%
Other Inland Fishing		13865	0.04%	3844	0.01%	2697	0.00%

Table 7a. Fisheries value by type of fisheries (1993-1996)

Type of Fisheries	Value: Thousand N.T. \$									
	Year		1993		1994		1995		1996	
	Value	%	Value	%	Value	%	Value	%		
Grand Total	63359280	100.00%	55634937	100.00%	64049342	100.00%	64703565	100.00%		
				%						
Far Sea Fisheries	42700613	67.39%	36046903	64.79%	43084074	67.27%	43827522	67.74%		
Otter Trawl	1913636	3.02%	2000297	3.60%	2764774	4.32%	3153206	4.87%		
Bull Trawl	3482080	5.50%	3491623	6.28%	3449553	5.39%	3055381	4.72%		
Purse Seine for Tuna	3622608	5.72%	4357325	7.83%	3881684	6.06%	3570215	5.52%		
Tuna Long Line	28398147	44.82%	20282828	36.46%	25359200	39.59%	27989934	43.26%		
Gill Net of Large Mesh Size	-	-	-	-	-	-	-	-		
Squid Jigging	4615064	7.28%	5065696	9.11%	6478838	10.12%	5114898	7.91%		
Squid Gill Net	-	-	-	-	-	-	-	-		
Torch Light Net for Saury	633975	1.00%	251004	0.45%	330528	0.52%	222365	0.34%		
Coral Fishing	-	-	-	-	-	-	-	-		
Other Far Sea Fisheries	35103	0.06%	598130	1.08%	819498	1.28%	721523	1.12%		
Offshore Fisheries	17285500	27.28%	16083584	28.91%	16930516	26.43%	16585511	25.63%		
Purse Seine	519390	0.82%	268798	0.48%	487615	0.76%	403461	0.62%		
Purse Seine for Mackerel	1781941	2.81%	1048922	1.89%	1785923	2.79%	2274057	3.51%		
Torch Light Net	982081	1.55%	1257623	2.26%	979658	1.53%	819180	1.27%		
Drag Net	7293843	11.51%	6023970	10.83%	6536107	10.20%	6786404	10.49%		
Gill Net	1410675	2.23%	2348564	4.22%	2202622	3.44%	2010468	3.11%		
Driving-in Net	41143	0.06%	89118	0.16%	6760	0.01%	46108	0.07%		
Other Offshore Nets	37746	0.06%	40862	0.07%	92841	0.14%	-	-		
Tuna Long Line	2402609	3.79%	2378278	4.27%	2942663	4.59%	2063630	3.19%		
Misc. Fish Long Line	2301420	3.63%	1648668	2.96%	1248762	1.95%	1417660	2.19%		
Troll Line	160248	0.25%	183335	0.33%	22176	0.03%	78655	0.12%		
Pole and Lines Boote	181653	0.29%	307984	0.55%	236645	0.37%	259398	0.40%		
Other Angling	82494	0.13%	123727	0.22%	88135	0.14%	120680	0.19%		
Coral Fishing	-	-	-	-	-	-	-	-		
Other Offshore Fisheries	90258	0.14%	363736	0.65%	300612	0.47%	305811	0.47%		
Coastal Fisheries	3270613	5.16%	3430129	6.17%	3976013	6.21%	4256372	6.58%		
Set Net	706813	1.12%	831139	1.49%	669856	1.05%	788623	1.22%		
Beach Seine	100750	0.16%	84286	0.15%	129049	0.20%	59028	0.09%		
Torch Light Net	117015	0.18%	66813	0.12%	189958	0.30%	188356	0.29%		
Gill Net	1340859	2.12%	1269521	2.28%	1195016	1.87%	1344211	2.08%		
Other Coastal Nets	156735	0.25%	216905	0.39%	439386	0.69%	439709	0.68%		
Pole and Lines Boote	175777	0.28%	261469	0.47%	253740	0.40%	338028	0.52%		
Long Line	117125	0.18%	63531	0.11%	165871	0.26%	204625	0.32%		
Other Angling	50592	0.08%	90324	0.16%	64642	0.10%	67191	0.10%		
Spear Fishing	167748	0.26%	199596	0.36%	141644	0.22%	107845	0.17%		
Sport Fishing	22986	0.04%	28066	0.05%	16410	0.03%	27739	0.04%		
Other Coastal Fisheries	314214	0.50%	318479	0.57%	710442	1.11%	691017	1.07%		
Inland Fishing Fisheries	102554	0.16%	74321	0.13%	58738	0.09%	34160	0.05%		
Inland Water Fishing	32832	0.05%	32797	0.06%	23884	0.04%	5493	0.01%		
Reservoir Fishing	51032	0.08%	23064	0.04%	22617	0.04%	25156	0.04%		
Other Inland Fishing	18690	0.03%	18460	0.03%	12237	0.02%	3512	0.01%		